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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,585	09/27/2004	Charles Gary Kay	028647-000023	5584
24239	7590	11/17/2006	EXAMINER	
MOORE & VAN ALLEN PLLC P.O. BOX 13706 Research Triangle Park, NC 27709			LARKIN, DANIEL SEAN	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/711,585		KAY, CHARLES GARY	
	Examiner		Art Unit	
	Daniel S. Larkin		2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 4,6,7,16-25 and 42-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,8-15 and 26-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03 December 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Acknowledgement is made of Applicant's election with traverse of the species embodied in claims 1-3, 5, 8-15, and 26-41 in the reply filed on 21 August 2006. The traversal is on the ground(s) that many of the features/embodiments identified by the examiner are not mutually exclusive; and therefore should be combined/included with other embodiments of the invention. Applicant has set forth an alternative restriction requirement comprising five species, which the Examiner has agreed to consider. The following Office Action takes into account Applicant's restriction requirement and subsequent election.

2. Claims 4, 6, 7, 16-25, and 42-49 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 21 August 2006.

Drawings

3. The drawings are objected to because of the following:

The lead lines leading into the "A/D converters 120, 122, 124, 224", as shown in Figures 1 and 2, should have an arrow pointing into the A/D converters so as to easily

identify from the figures which ways the signals are transmitted to the various structures of the invention.

The lead lines leading from the "D/A converter 134" to the Air mover 102, as shown in Figures 1 and 2, should have an arrow pointing into the Air mover 102.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "458" has been used to designate both a "D/A converter" and a "voltage regulator", as shown in Figure 4A.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

A description of "D/A converter 458", as shown in Figure 4A, does not appear within the written specification.

The determination of whether the air mover has been calibrated by the user or not, as shown in Figure 5, does not appear within the written specification describing Figure 5.

Reference block "814", as shown in Figure 8, is not expressly described with respect to the discussion of the process 800, as shown in Figure 8.

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with

Art Unit: 2856

37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Art Unit: 2856

8. The disclosure is objected to because of the following informalities:

Paragraph [24], line 12: A -- comma -- should be inserted prior to the term "such".

Paragraph [29], line 6: The "comma" after the term "inlet" should be deleted.

Paragraph [29], line 9: The "comma" after the term "assembly" should be deleted.

Paragraph [29], line 13: The "comma" after the term "filter" should be deleted.

Paragraph [30], line 9: The verb "are" should be corrected to read -- is --.

Paragraph [31], line 14: The "comma" after the term "sensor" should be deleted.

Paragraph [31], line 26: The "comma" after the term "converter" should be deleted.

Paragraph [32], line 5: The "comma" after the term "signal" should be deleted.

Paragraph [33], line 2: The "comma" after the term "channel" should be deleted.

Paragraph [35], line 2: The "comma" after the term "portion" should be deleted.

Paragraph [35], line 7: The term "adjust" should be corrected to read -- adjusts --.

Paragraph [35], line 9: The "comma" after the term "fin" should be deleted.

Paragraph [35], line 16: The "comma" after the term "positions" should be deleted.

Paragraph [36], line 2: The "comma" after the term "board" should be deleted.

Paragraph [36], line 16: The "comma" after the term "daughter-board" should be deleted.

Paragraph [37], line 10: The term "away" should be corrected to read
-- awake --.

Paragraph [37], line 15: The term "press" should be corrected to read
-- pressed --.

Paragraph [38], line 2: The second occurrence of the numeral "8" should be
corrected to read -- eight --.

Paragraph [38], line 7: The numeral "10" should be corrected to read -- ten --.

Paragraph [39], line 1: The "comma" after the term "circuit" should be deleted.

Paragraph [39], line 6: A -- comma -- should be inserted after the term
"features".

Paragraph [39], line 7: A -- comma -- should be inserted prior to the term "with".

Paragraph [39], line 15: A -- comma -- should be inserted after the term
"transistor".

Paragraph [40], line 1: The "comma" after the term "switches" should be deleted.

Paragraph [41], line 14: The numeral "1" should be corrected to read -- one --.

Paragraph [43], line 7: The article "a" should be deleted.

Paragraph [43], line 8: The "commas" should be deleted after the terms
"components" and "motor".

Paragraph [44], line 4: The article -- the -- should be inserted prior to the term
"air".

Paragraph [44], line 7: The term "it's" should be corrected to read -- its --.

Paragraph [46], line 9: The numeral "10" should be corrected to read -- ten --.

Art Unit: 2856

Paragraph [46], line 11: The "comma" after the term "circuit" should be deleted.

Paragraph [47], line 1: The "comma" after the term "sensor" should be deleted.

Paragraph [48], lines 13-15: This sentence does not make sense. It appears that some phrase or idea needs to be inserted after the phrase "resolution of".

Paragraph [48], line 18: The numeral "85" should be corrected to read -- eighty-five --.

Paragraph [49], line 3: The "comma" after the term "sensor" should be deleted.

Paragraph [50], line 5: The "comma" after the term "adapter" should be deleted.

Paragraph [50], line 6: The "comma" after the term "battery" should be deleted.

Paragraph [50], line 7: The "comma" after the term "charger" should be deleted.

Paragraph [62], line 2: The "comma" after the term "process" should be deleted.

Paragraph [66], line 6: A -- comma -- should be inserted after reference numeral "704"

Paragraph [66], line 10: The numeral "1" should be corrected to read -- one --.

Paragraph [69], line 1: The "comma" after the term "process" should be deleted.

Paragraph [72], line 8: The "comma" after the term "table" should be deleted.

Paragraph [74], lines 17 and 18: A -- period -- should be inserted after both occurrences of the abbreviation "FIG". Appropriate correction is required.

Claim Objections

9. Claims 9, 30, 31-36 are objected to because of the following informalities:

Re claim 9, claim line 1: The term "wherein" should be deleted.

Re claim 32, claim line 4: The phrase -- the steps of -- should be inserted after the term "comprising". Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 41 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 41, claim line 6: The phrase "the means for sensing the external temperature" lacks antecedent basis.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-3, 5, 8-15, and 26-41 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,603,155 (Morris et al.).

With respect to the limitations of claim 1, Morris et al. disclose an apparatus for

Art Unit: 2856

mass emission sampling of exhaust gases, comprising: an air moving arrangement (16) disposed to be operable to move air over a sampling media (24), the air moving arrangement having an adjustable operating speed, col. 4, lines 14-19; an integrated airflow sensor (47-50) disposed to be in fluid communication with the air moving arrangement, col. 6, lines 7-25; and a control system (45) interfaced to the air moving arrangement (16), the control system operable to determine a measured airflow based at least in part on signaling from the integrated airflow sensor, col. 6, lines 39-75.

With respect to the limitation of claim 2, Morris et al. disclose that the pump is controlled so as to maintain the sampling airflow at a constant flow rate, i.e. target value, such as 100 cubic feet per minute, col. 4, lines 3-7 and col. 6 lines 49-52.

With respect to the limitation of claim 3, Morris et al. disclose that the control unit (45) receives signaling and adjusts an operating speed of the air moving arrangement (16) based at least in part on the signaling, as shown in Figure 3.

With respect to the limitation of claim 5, Morris et al. inherently teach the generation of a voltage signal from the pressure transducer (48) for application to the control unit (45).

With respect to the limitations of claim 8, Morris et al. disclose the use of a temperature sensing means (53,54) connected to the control unit (45), and wherein the airflow is determined at least in part based on a temperature reading, col. 5, lines 49-58.

With respect to the limitation of claim 9, Morris et al. appear to disclose a user display device located on the control unit (45) to show measured airflow, as shown in Figure 1 and col. 6, lines 49-52.

With respect to the limitation of claim 10, Morris et al. appear to disclose a user input device located within the control unit (45) to adjust the target value based on user input, as shown in Figures 1 and 3 and col. 4, lines 3-31 and col. 5, lines 49-63.

With respect to the limitation of claim 11, Morris et al. disclose the use of a temperature sensing means (53,54) connected to the control unit (45), and wherein the airflow is determined at least in part based on a temperature reading, col. 5, lines 49-58.

With respect to the limitations of claims 12-15, Morris et al. disclose a sampling media (24), which is disposed to be in fluid communication with the airflow sensor (47-50) and the air moving arrangement (16).

With respect to the limitations of claims 26, 28, and 30, Morris et al. appear to teach determine standard airflow from measured airflow as Morris et al. tries to maintain the air flow sampling rate to be a standard constant value.

With respect to the limitations of claims 27, 29, and 31, Morris et al. inherently has the capability to store a history of environmental and sample related data since the ambient air is sampled (29, 33) and collected (35) at various times as well as the exhaust contaminants are sampled and collected at various engines speeds and conditions as dictated by a dynamometer. Thus, the various results generated would be stored for a record of the test.

With respect to the limitations of claim 32, Morris et al. disclose a method for mass emission sampling of exhaust gases, comprising the steps of: calculating a measured airflow based at least in part on a signal from an integrated airflow sensor (47-50) and a current environmental reading, such as a temperature reading; comparing

the measured airflow to a target value to obtain a result; and adjusting the operating speed of the of the air moving arrangement along with other actions to maintain the measured airflow substantially in accordance with the target value, i.e. a constant flow rate.

With respect to the limitation of claim 33, Morris et al. appear to disclose a user display device located on the control unit (45) to show measured airflow, as shown in Figure 1 and col. 6, lines 49-52.

With respect to the limitation of claim 34, Morris et al. appear to disclose a user input device located within the control unit (45) to adjust the target value based on user input, as shown in Figures 1 and 3 and col. 4, lines 3-31 and col. 5, lines 49-63.

With respect to the limitations of claims 35 and 36, Morris et al. disclose the use of a temperature sensing means (53,54) connected to the control unit (45), and wherein the airflow is determined at least in part based on a temperature reading, col. 5, lines 49-58.

With respect to the limitations of claim 37, Morris et al. disclose an apparatus for mass emission sampling of exhaust gases, comprising: means for sensing airflow; means for calculating the measured airflow based, at least in part, on at least one of, signaling from the means for sensing airflow and a current environmental reading, col. 6, lines 39-75; means for comparing the measured airflow to a target value to obtain a result; and means for adjusting the operating speed of the air moving arrangement (16) based on the result to maintain the measured airflow substantially in accordance with the target value.

With respect to the limitation of claim 38, Morris et al. appear to disclose a user display device located on the control unit (45) to show measured airflow, as shown in Figure 1 and col. 6, lines 49-52.

With respect to the limitation of claim 39, Morris et al. appear to disclose a user input device located within the control unit (45) to adjust the target value based on user input, as shown in Figures 1 and 3 and col. 4, lines 3-31 and col. 5, lines 49-63.

With respect to the limitations of claim 40, Morris et al. disclose the use of a temperature sensing means (53,54) connected to the control unit (45), and wherein the airflow is determined at least in part based on a temperature reading, col. 5, lines 49-58.

With respect to the limitations of claim 41, Morris et al. appear to suggest that the sampler is operated over a plurality of sampling periods, which result from the vehicle experiencing various engine speeds and loads; and means are provided for maintaining/updating the measured airflow at a constant mass airflow based on a change in the temperature, col. 2, lines 40-44.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art to US 3,965,748 (Boubel et al.) and US 4,686,848 (Casselberry et al.) each disclose particulate samplers having means for matching the volume rate of flow through the sampler to the flow in a gas sample stream. The samplers use temperature measuring means and airflow sensors to adjust the airflow of the sampler.

Art Unit: 2856

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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AU 2856
09 November 2006